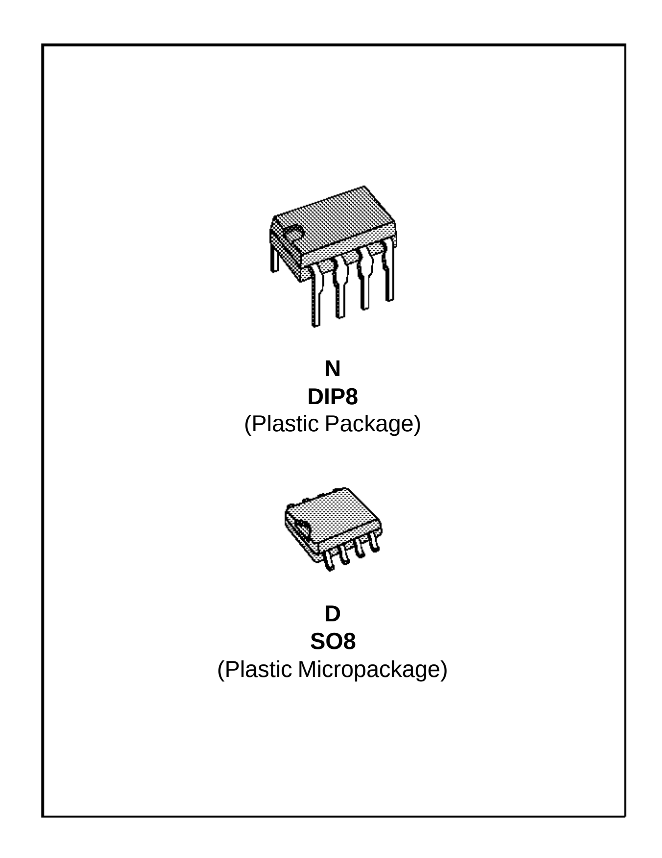




LOW NOISE DUAL OPERATIONAL AMPLIFIERS

- LOW VOLTAGE NOISE : **4.5nV/√Hz**
- HIGH GAIN BANDWIDTH PRODUCT : **15MHz**
- HIGH SLEW RATE : **7V/µs**
- LOW DISTORTION : 0.002%
- EXCELLENT FREQUENCY STABILITY
- ESD PROTECTION 2kV



DESCRIPTION

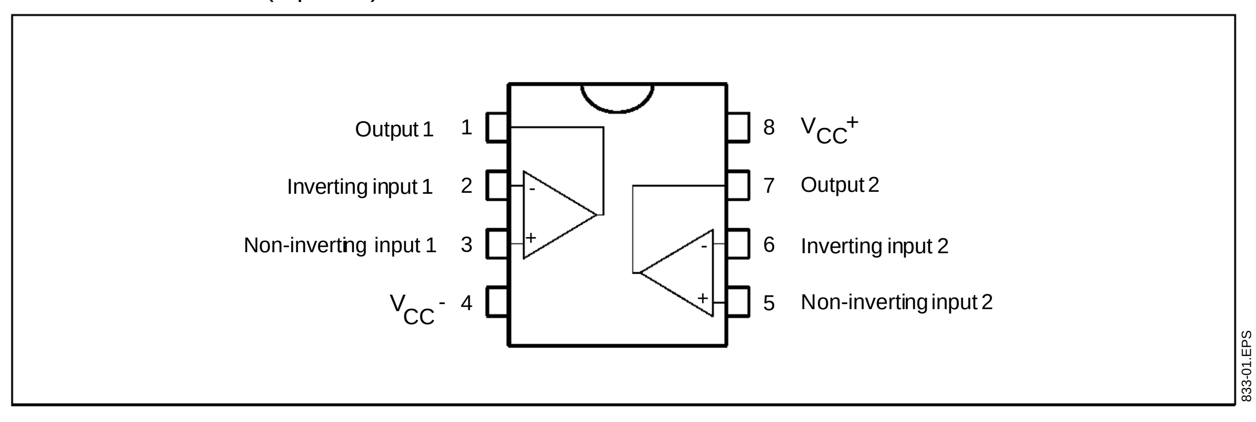
The LM833 is a monolithic dual operational amplifier dedicated to audio applications. The LM833 offers low voltage noise (4.5nV/√Hz) and high frequency performances (15MHz gain bandwidth product, 7V/µs slew rate).
In addition the LM833 has also a very low distortion (0.002%) and excellent phase/gain margins.

ORDER CODES

Part Number	Temperature Range	Package	
		N	D
LM833	-40, +105°C	•	•

833-01.TBL

PIN CONNECTIONS (top view)



SCHEMATIC DIAGRAM (1/2 LM833)

V_{CC}^{+}

Inverting Input

Non-inverting Input

Output

V_{CC}^{-}

833-02.EPS

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	±18 or +36	V
V_{id}	Differential Input Voltage - (note 1)	±30	V
V_i	Input Voltage - (note 1)	±15	V
	Output Short-Circuit Duration - (note 2)	Infinite	
T_{oper}	Operating Free-air Temperature Range	-40 to +105	^oC
T_j	Maximum Junction Temperature	+150	^oC
T_{stg}	Storage Temperature	-65 to +150	^oC
P_{tot}	Maximum Power Dissipation - (note 2)	500	mW

833-02.TBL

Notes : 1. Either or both input voltages must not exceed the magnitude of V_{CC+} or V_{CC-}
2. Power dissipation must be considered to ensure maximum junction temperature (T_j) is not exceeded

OPERATING CONDITIONS

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	±2.5 to ±15	V

833-03.TBL



ELECTRICAL CHARACTERISTICS

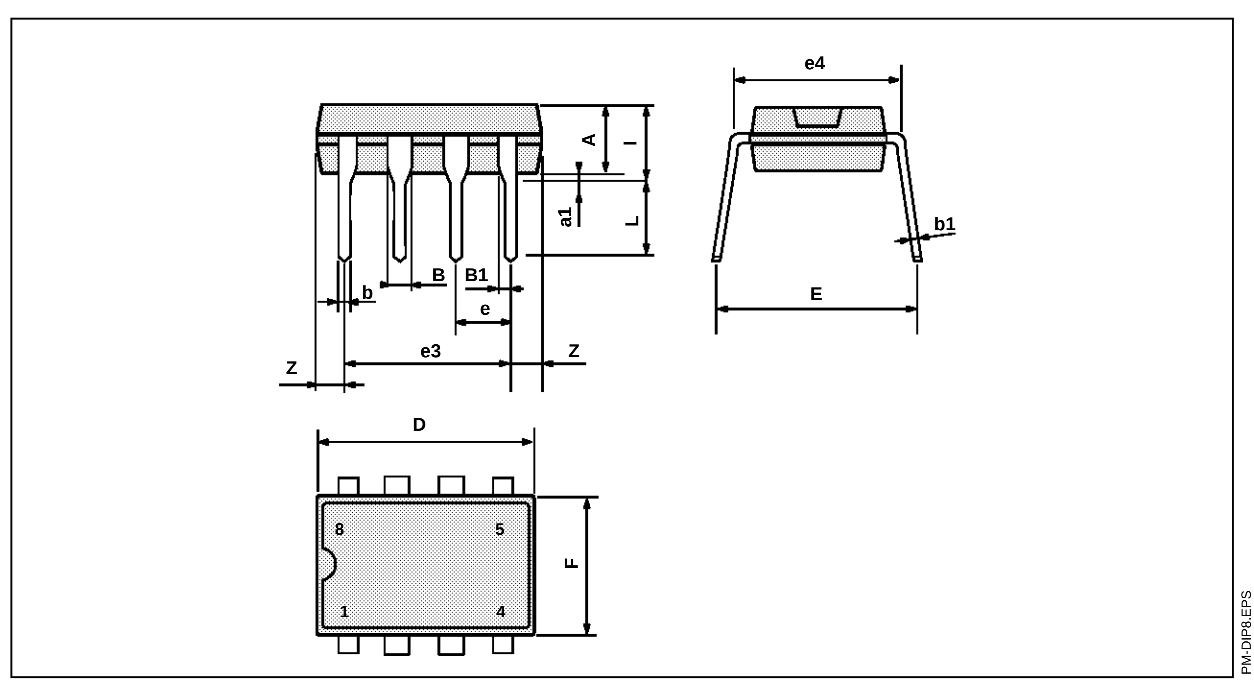
$V_{CC}^{+} = +15V$, $V_{CC}^{-} = -15V$, $T_{amb} = 25°C$ (unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{io}	Input Offset Voltage ($R_S = 10\Omega$, $V_{ic} = 0V$, $V_o = 0V$)		0.3	5	mV
DV_{io}	Input Offset Voltage Drift $R_S = 10\Omega$, $V_o = 0V$, $T_{min.} \leq T_{amb} \leq T_{max.}$		 2		µV/°C
I_{io}	Input Offset Current ($V_{ic} = 0V$, $V_O = 0V$)		25	200	nA
I_{ib}	Input Bias Current ($V_{ic} = 0V$, $V_O = 0V$)		300	1000	nA
V_{icm}	Common Mode Input Voltage Range	±12	±14		V
A_{vd}	Large Signal Voltage Gain ($R_L = 2k\Omega$, $V_O = \pm10V$)	90	100		dB
$\pm V_{opp}$	Output Voltage Swing ($V_{id} = \pm1V$) $R_L = 2.0k\Omega$ $R_L = 2.0k\Omega$ $R_L = 10k\Omega$ $R_L = 10k\Omega$	 10 12 	 13.7 -14 13.9 -14.4	 -10 -12	V
CMR	Common Mode Rejection Ratio ($V_{ic} = \pm12V$)	80	100		dB
SVR	Supply Voltage Rejection Ratio $V_{CC}^{+} / V_{CC}^{-} = +15V / -15V$ to $+5V / -5V$	 80	 105		dB
I_{CC}	Supply Current ($V_O = 0V$, both amplifiers)		4	8	mA
SR	Slew Rate ($V_i = -10V$ to $+10V$, $R_L = 2k\Omega$, $A_V = +1V$)	5	7		V/µs
GBP	Gain Bandwidth Product (f = 100kHz, $R_L = 2k\Omega$, $C_L = 100pF$)	10	15		MHz
B	Unity Gain Bandwidth (Open loop)		9		MHz
∅m	Phase Margin		60		Degrees
e_n	Equivalent Input Noise Voltage ($R_S = 100\Omega$, f = 1kHz)		4.5		$\frac{nV}{\sqrt{Hz}}$
i_n	Equivalent Input Noise current (f = 1kHz)		0.5		$\frac{pA}{\sqrt{Hz}}$
FPB	Full Power Bandwidth ($V_O = 27Vpp$, $R_L = 2k\Omega$, THD ≤ 1%)		120		kHz
THD	Total Harmonic Distortion $R_L = 2k\Omega$, f = 20Hz to 20kHz, $V_O = 3V_{rms}$, $A_V = +1$		 0.002		%
V_{O1}/V_{O2}	Channel Separation (f = 20Hz to 20kHz)		120		dB

833-04.TBL

PACKAGE MECHANICAL DATA

8 PINS - PLASTIC DIP

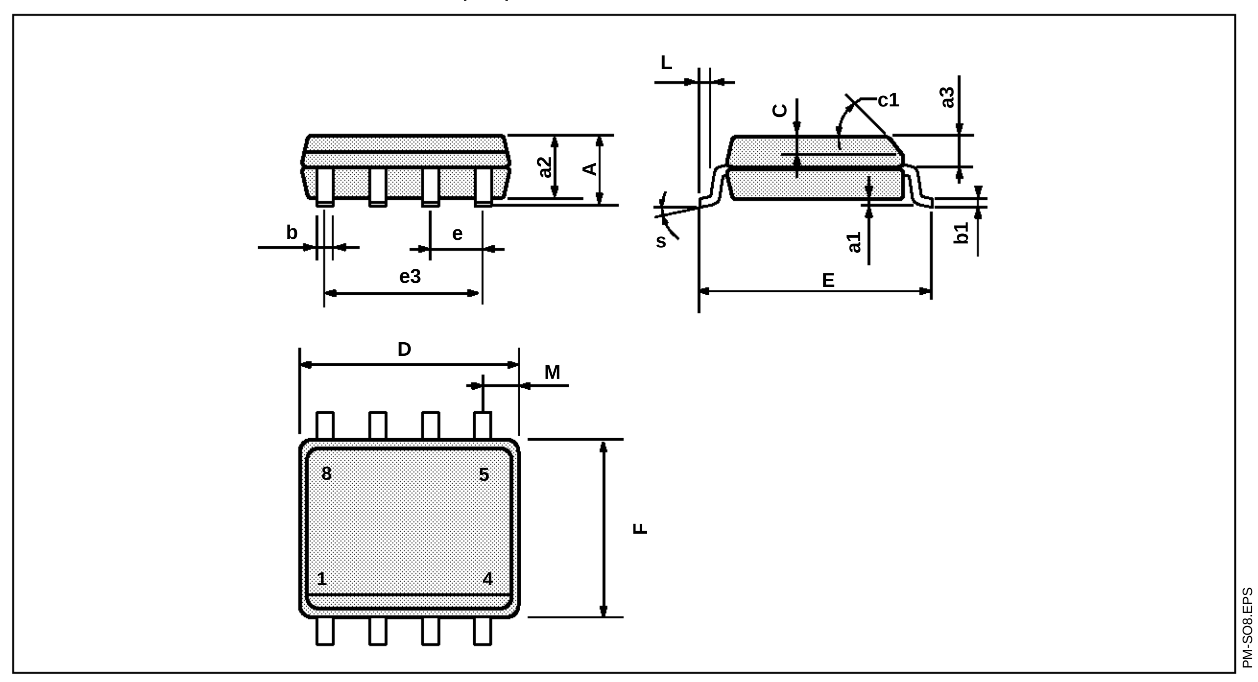


Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		3.32			0.131	
a1	0.51			0.020		
B	1.15		1.65	0.045		0.065
b	0.356		0.55	0.014		0.022
b1	0.204		0.304	0.008		0.012
D			10.92			0.430
E	7.95		9.75	0.313		0.384
e		2.54			0.100	
e3		7.62			0.300	
e4		7.62			0.300	
F			6.6			0260
i			5.08			0.200
L	3.18		3.81	0.125		0.150
Z			1.52			0.060

DIP8.TBL

PACKAGE MECHANICAL DATA

8 PINS - PLASTIC MICROPACKAGE (SO)



PM-SO8.EPS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.75			0.069
a1	0.1		0.25	0.004		0.010
a2			1.65			0.065
a3	0.65		0.85	0.026		0.033
b	0.35		0.48	0.014		0.019
b1	0.19		0.25	0.007		0.010
C	0.25		0.5	0.010		0.020
c1	45^o (typ.)					
D	4.8		5.0	0.189		0.197
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		3.81			0.150	
F	3.8		4.0	0.150		0.157
L	0.4		1.27	0.016		0.050
M			0.6			0.024
S	8^o (max.)					

SO8.TBL

ORDER CODE :